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ABSTRACT

This paper describes the collaborative team teaching experience in an educational technology course taught by Cleveland State University (Ohio) faculty. In this study, a collaborative team used a reflective approach from constructivist perspectives and involved students as well as two instructors in planning, conducting, and evaluating processes. The goals of team teaching were to provide each student with opportunities to choose from different instructional styles and formats, to enrich the learning experience by sharing and collaborating, and to facilitate a supportive and constructive environment through in-depth interaction with each student. The purpose of the study was to examine the effectiveness of this collaborative team teaching approach. Surveys, individual/small group interviews, observations, class notes, course evaluations, and student feedback were used to find the students' satisfaction level, the effects of learning, and the significant factors in the team teaching approach. (Author/MES)

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Collaborative Team Teaching Approach in a Technology Course

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Abstract: This paper describes the collaborative team teaching experience in a technology course. In this study, a collaborative team used a reflective approach from constructivist perspectives and involved students as well as two instructors in planning, conducting, and evaluating processes. The goals of team teaching were to provide each student with opportunities to choose from different instructional styles and formats, to enrich the learning experience by sharing and collaborating, and to facilitate a supportive and constructive environment through in-depth interaction with each student. The purpose of this study was to examine the effectiveness of this collaborative team teaching approach. The surveys, individual/small group interviews, observations, class notes, course evaluation, and students' feedback were used to find the students' satisfaction level, the effects of learning, and the significant factors in the team teaching approach.

In the beginning, when technologies were introduced in K-12 classrooms, most pre- and in-service teachers were at the starting level of learning technology and had minimal or no experience in using technology. With the growth of availability of technologies and teacher training programs, pre and in-service teachers have varied experiences from using word processing, spreadsheets, and the Internet to developing multimedia. Also, the usual pattern of students' technological capability in technology courses has been changed. Students who possess different knowledge, interests, and skills in different subject areas created a complex learning environment. The gap of technology skills between beginning and advanced students has been dramatically increased. Many students who have minimal prior experience with technology are overwhelmed by other advanced student's capabilities as well as information overload.

With the complex learning environment, we realized that instruction focused on one group is not appropriate in a multi-group classroom. To help each student achieve personalized learning goals and to minimize students' anxiety about other advanced student group, we tried a collaborative team teaching approach in an integrated technology course. The major goals of our collaborative team teaching were 1) to provide each student with opportunities to choose from different instructional styles and formats, 2) to enrich the learning experiences by sharing and collaborating, and 3) to facilitate a supportive and constructive environment through in-depth interaction with each student.

The purpose of this study was to examine the effectiveness of the collaborative team teaching approach. The surveys, individual/small group interviews, observations, class notes, course evaluation, and student's feedback were used to find the students' satisfaction level, the effects of learning, and the significant factors in the team teaching approach. In the team teaching approach, we tried many different formats such as whole class presentations/discussions, individual/small group activities, and tutorial sessions. Usually the classes started with the whole group session and then each student chose a learning activity according to her/his needs. Two instructors rotated their role from small group tutorial sessions to individual/small group activities. While one instructor took care of a tutorial session to beginning students, the other supported the exercise of students' own creative abilities. This paper describes the teaching strategies implemented in our collaborative team teaching approach, reports the results caused from our efforts in details, and suggests effective ways to implement team teaching for future courses.

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The Study

Participants in Team Teaching

A technology course was taught by Cleveland State University (CSU) faculty during the 1999 fall semester on campus at Lorain County Community College (LCCC) as a course in the University Partnership program of CSU and LCCC. The course was offered for graduate students in the Partnership at LCCC just as if it was being taught at the CSU campus. 34 students enrolled in a technology course were divided into two sections. Initially 21 students in one section were assigned in the PowerMac lab that provides access to both Mac and PC environment, and 13 students in the other section were assigned in the IBM lab that provides only PC environment.

About 90% of students enrolled in this course were pre-service or in-service teachers in K-12 and higher education. The majority of students entered the program to receive a Master's degree in Computer Uses in Education or certification to teach technology in K-12 schools. There were few students who took the class to improve their professional development with technology in a Non-degree program. The whole group consisted of 29 female and 5 male students represented a diverse range in age and experience.

While traditional teaching in higher education requires one instructor to teach his/her students in a course, two instructors from CSU designed, planed, conducted, and evaluated the course with different styles and viewpoints as a collaborative effort. Although the instructors had common agreements on many educational philosophy, teaching area, and flexibility, they were different in gender, experience, and expertise. In this study collaborative team involved students as well as two instructors in the teaching process as much as possible. The students were expected and required to engage in collaboration of goal setting, presentations, discussions, in-class activities, and evaluations.

Course Design

This was a pilot study that implemented a team teaching approach in a technology course. The main purpose of this collaborative team approach was to reduce the frustration of students who had limited experience with technology, to enhance advanced students according to their level, and to provide better learning environment through access to various types of technological equipment and groups. Team teaching in this instance encouraged students to set their own goal of learning and to explore their own values, team teaching enhanced collaborative learning by sharing ideas, experiences, and viewpoints. Team teaching also provided a wonderful opportunity for team learning.

As we developed the course, we tried to provide students with opportunities to articulate their own beliefs, create their own knowledge, and evaluate their learning progress. The course requirements included in-class activities, reflecting on a reading, a comprehensive exam, four mini projects, and a final project that represents comprehensive understanding and skills. Usually each class began with a chapter presentation by instructors or a small student group and then the class topic was discussed in depth through sharing of experiences and perspectives. To incorporate student's knowledge constructed through class discussion and presentation into a real context such as their classrooms and work places, in-class activities were required in a small group or by individual. During the in-class activities, the students were given the option of practicing in-class activities, working on their own, or attending tutorial sessions based on their prior experiences, need, ability, and progress of learning. While one instructor conducted the tutorial session, the other guided students in the different group.

With a collaborative team teaching approach, we emphasized the student-centered instruction. Two instructors tried to change the fixed role transmitting knowledge toward the flexible role of a facilitator of student's activities. The students were involved intellectually in critical-thinking or higher-order thinking process instead of passively taking notes from instructors' lectures. For one semester, the students were engaged in four learning phases:

- exploring/inquiring,
- sharing,
- developing

- evaluation

Inquiring/Exploring

The students were required to review some articles to understand fundamental theories/practices and integration strategies for integrating technology into their teaching or professional practices, and to develop their own technology plan to be used in their classroom teaching and work. Two instructors introduced some useful examples and resources as a guided instruction. After the students reviewed information, they were expected to analyze the findings through critical thinking skills and to connect their knowledge to real life experiences.

Sharing

All students were required to participate in a presentation of at least one chapter to the whole class from the textbook, *Integrating Educational Technology into Teaching* (Roblyer, Edwards & Havriluk, 1999), through a collaborative effort in a small group. Each group was encouraged to incorporate presentation tools such as PowerPoint, HyperStudio, or Web site in a professional manner. The main focus of chapter presentation was on the creative ideas for applying knowledge and presentation strategies rather than the content itself of the chapter. It was essential that all team members contribute to organizing and presentation. To do this, each student took responsibility for participating in team discussions and planning process to develop a main frame and strategies for the group presentation.

Developing

The students were highly encouraged to integrate technology into their classroom teaching where possible when they develop instructional materials or projects. Many students selected students or parents in their classroom as a target user group when they develop instructional material or projects. In the developmental level, they developed problem-solving or critical thinking skills to design an effective material and to find practical solution when they encounter some problems. The students gained frequent feedback or input from the instructors, peers, and potential users to revise the prototype. When they were satisfied with their product, they were motivated to use their product in the real classroom. For examples, some students used the instructional material developed in the course for their classroom teaching, disseminated the classroom newsletter to inform parents with special events in their classroom, or presented the project in a parent-teacher conference.

Evaluating

In this course, two instructors assessed students in a constructivist manner instead of traditional type such as grading on a bell-curve. The focus of assessment was on learning progress of individual learner rather than achievement of predefined learning objectives. Students' projects were reviewed several times by peers as well as two instructors so as other to make improvement based on suggested ideas. Most assignments were evaluated by a recursive approach that focuses on revision processes rather than a final outcome. However, to provide general guideline for the assignment and to avoid student's confusion in the process of evaluation, the instructors provided minimal criteria for each aspect of the project. The final grade for each assignment was given by agreement of two instructors and recorded in the master grade sheet.

The Method

The effectiveness of team teaching was examined in six different ways: the 1) surveys, 2) individual/small group interviews, 3) observations, 4) instructors' notes, 5) course evaluation, and 6) student's

feedback. The purpose of this was to find the students' satisfaction level, the effects of learning, and the significant factors in the team teaching approach.

The surveys were conducted in the beginning and middle of the semester with a semi-structured format and open-ended question items. The first survey was conducted to examine the students' background information such as their teaching areas/grade level, prior skills/experiences with technology, and expectations of learning and answered by all 34 students. The second survey questionnaire provided multiple options from strongly disagree to strongly agree (1-5) in the first part and included open-ended questions in the second part. The second survey was conducted anonymously and responded by 24 out of 34 students. The survey examined the degree of

1) meaningful learning
2) suitability in graduate level
3) engagement of learning
4) interaction between instructors and students
5) recommendation for the next semester
6) willingness to apply what they have learned to their teaching.

Informal interviews with three individuals and three students in a small group were conducted in the end of semester to find the their satisfaction level of learning and the strengths/weaknesses of team teaching approach. Two instructors observed and reviewed each class to examine what worked, what did not, and what should be changed to provide meaning learning environment in the next sessions. Students' feedback and requests via e-mail and short conversations were reflected according to agreement with other students as well as two instructors.

The Findings

Interaction between Instructors and Students

Over 75 % of students indicated that team teaching approach enhanced students' meaningful learning through individualized comments and feedback and they had opportunities to see different styles of planning and organization, as well as methods of class presentation. There was more and faster interactions with instructors as indicated and preferred by most students. One student mentioned that trouble shooting took less time and handled in various ways. With team teaching approach, they could get double feedback from both instructors on their projects and presentations. As a result, the students acquired a greater depth of understanding of the subject matter and mastered skills to incorporate technology into their teaching from different strategies and viewpoints.

Suitability of Team Teaching Approach in Graduate Level

One of the main characteristics of most students in the graduate level program is self-motivation. With team teaching environment, the students collaborated with other students in many different aspects/various groups. They shared different models of presentation and discussion style and learned various strategies for problem solving and organizing information.

Student Attitudes

In the collaborative team teaching, the blending of each instructor's expertise strengthened the content of the lessons and the way they were presented. Most students reported that they learned to be more flexible, to focus on individual strengths, and to prioritize concepts. About 55% of students marked on the strongly agree or agree about intention level to apply team teaching approach in their classroom teaching and more than half of them recommended the team teaching approach for a technology course that will be taught in the next semester.

Disadvantages of Team Teaching

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Speer and Ryan (1998) pointed out several common problems in collaborative team teaching. One of major problem is that teachers may feel insecure and tense while doing collaborative team teaching, due in part to different levels of experience and expertise in relation to the course and or different statuses. The second major problem with collaborative team teaching is its lack of institutional support.

In our case, these problems were handled very smoothly. Two instructors who are very flexible enough to try innovative teaching ways to improve the quality of teaching and had common understanding about teaching philosophy from constructivist perspectives that emphasize student-centered learning. In addition, this pilot study had a great support and encouragement from administrators that recognize the benefits of team teaching for professional development and for improving our courses.

Critical Factors in Collaborative Team Teaching

Major concerns in the collaborative team teaching were to set the course goal, to determine roles in each part, setting agendas, keeping records, setting procedures for evaluation, and scheduling class activities and assignments, etc. Through the collaboration work, we found several essential factors to successful team teaching.

Mutual respect and trust

As Cruz & Zaragoza (1998) mentioned, to establish mutual respect and trust between two instructors is critical for successful team teaching. Two instructors had a common understanding about instructional strategies and learning objectives from constructivist perspectives. The instructors also respect students' viewpoint and invited students to share their experiences with the whole class.

Communications

Some educators mentioned that in team teaching, you spend less time developing and teaching the course than was normally spent by the individual instructors (Morganti & Buckalew, 1991). However, we revealed that the collaborative team teaching in a constructivist way requires large amount of time and high level of energy in all processes. Our major concern in the team teaching was to improve the quality of teaching and learning from epistemological perspective that knowledge is constructed by social interaction among group (Austin & Baldwin, 1991). In practice, we spent huge amount of time preparing each class and evaluating our students' assignments. In the most cases, the initial plan by individual perspective was negotiated with other instructor and students.

Responsibilities

Before-class meetings, the instructors reviewed individual responsibilities on content coverage, preparing hand-outs, and their roles in the class. Some students worried about the evaluation of their assignment by two different instructors and record keeping of learning progress. To minimize students' common confusion by two instructors, we kept master database that recorded a track of students' learning progress. The instructors provided a guideline and criteria for each classroom exercise and assignment. Over all, in our collaborative team teaching, the responsibility of learning was shared with all students as well as with partner instructor.

Reflection

The instructors evaluated each class to review differences between what was planned and what the students are achieving and refocused on the subject matter. The evaluation was conducted right after each class for 30 to 40 minutes and recorded in instructors' log document for teaching in the next semester. In addition, reflective input or feedback by students was welcomed and encouraged to improve the collaborative teaching and learning environment.

Conclusions

Although many studies of team teaching approach indicated positive results such as reducing teacher isolation, and increasing students' satisfaction, much of team teaching efforts happened in primary or secondary school level (Walsh & Snyder, 1993; Solomon, 1994). In many higher education institutions, the typical pattern of teaching is still largely based on an individual instructor bearing responsibility for students in a course with limited interaction with colleagues. Although students may learn or discuss about the team teaching concepts, but this does not take the place of being a participant in such an activity.

Banks and Stave (1998) stress that preservice teachers need to observe, experience, and reflect on learning activities from both student and teacher perspectives during their preservice coursework. However, preservice teachers rarely encounter team teaching in their course experiences. As revealed by many studies on team teaching, team teaching makes effective use of existing human resources without additional requirements of expensive resources or equipment to implement this method. Only rearrangement of human resources and equipment and support from administrators are required to implement team teaching.

Even though few students expressed a negative impact on resources, especially class size and classroom space, our collaborative teaching was very successful because we had common understanding of the theories and common educational philosophy. The students and instructors had very positive experiences in this team teaching approach. With combined expertise and resources, the students were actively engaged for meaningful learning to achieve personalized goals. While advanced students were enriched a meaningful learning on their own direction, the inexperienced students with technology felt comfortable with less anxiety toward overloaded information and comparison with advanced students. In addition, the instructors' role as facilitators instead of having authority in the classroom made for an effective environment for collaborative teaching and learning.

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